1. (Amended) A method of allocating a temporary identity to at least one mobile station in a cellular network, the method comprising:

using a network element having an identifier of its own to allocate a temporary identity to the at least one mobile station, wherein the temporary identity includes at least part of an identifier indicating the network element.

2. (Amended) The method of claim 1, wherein each of the at least one mobile stations is located within one of a plurality of paging areas of the cellular network, and wherein the temporary identity of the network element also includes a paging identity which is unique to each of the at least one mobile stations.

3. (Amended) The method of claim 2, further comprising uniquely identifying the network element based on the identifier of the network element and an identifier of the paging area where the temporary identity was allocated.

4. (Amended) The method of claim 2, wherein each of the plurality of paging areas includes an associated master network element for allocating a paging identity to each of the at least one mobile stations in the paging area; and

wherein the method further comprises:

requesting a paging identity for at least one mobile station from the master network element of a paging area; and

allocating the temporary identity to the at least one mobile station in the paging area associated with the master network element.

5. (Amended) The method of claim 4, wherein each of the plurality of paging areas is coupled to a plurality of network elements, and wherein the method further comprises using the temporary identity for routing uplink traffic to the network element currently serving the at least one mobile station.

6. (Amended) The method of claim 5, further comprising, after the at least one mobile station moves from a first paging area of the plurality of paging areas to a second paging area of the plurality of paging areas, the network element of the second paging area using the temporary identity and the identifier of the second paging area for deriving an identifier of the network element of the first paging area which served the mobile station before the move.

7. (Amended) The method of claim 6, wherein only the paging identity is used for paging the mobile station, and the method further comprises using the temporary identity for signaling.

8. (Amended) A network element for a cellular network configured to allocate a temporary identity to at least one mobile station, wherein the temporary identity includes at least a part of an identifier indicating a network element that allocates the temporary identity.

9. (Amended) The network element of claim 8, wherein the network element is configured to use the temporary identity and an identifier of a paging area in which the at least one mobile station is located to derive an identifier of another network element which previously served the mobile station.

10. (Amended) The network element of claim 8, wherein the temporary identity also includes a paging identity which is unique to each of the at least one mobile stations in a paging area of the cellular network.

17. (Amended) A radio station controller for a cellular network, configured to route data packets including a temporary identity allocated to a mobile station, wherein the temporary identity includes at least part of an identifier indicating a network element which allocated the temporary identity;

and wherein the radio station controller is configured to use at least part of the temporary identifier to route data packets to the first network element currently serving the mobile station.

18. (Amended) The radio station controller of claim 17, further comprising, for each of the at least one mobile stations, a context for temporarily storing an identifier of the network element currently serving the mobile station.

**Please enter the following new claims:**

19. (New) A cellular network comprising at least one network element configured to allocate a temporary identity to at least one mobile station, wherein the temporary identity includes at least a part of an identifier indicating a network element that allocates the temporary identity.

20. (New) The cellular network of claim 19, further comprising a database element configured to:

receive an inquiry including the at least part of the identifier of the network element that allocates the temporary identity and information relating to a location where the temporary identity was allocated, such as a paging area identifier; and

determine, based on the inquiry, an address of the network element which allocated the temporary identity.

21. (New) The cellular network of claim 20, wherein the database element is a domain name server.

22. (New) The cellular network of claim 20, wherein the database element is further configured to send an inquiry to another network element currently storing a context for the mobile station in question.

23. (New) A mobile station for a cellular network, wherein the mobile station is configured to use a temporary identity allocated by a network element, the temporary identity including at least a part of an identifier of a network element that allocates the temporary identity.

24. (New) The mobile station of claim 23, wherein the mobile station is configured to use the temporary identity in connection with at least one of the following procedures: cell update, routing area update, location area update, paging area update and paging response.

25. (New) The mobile station of claim 23, wherein the mobile station is configured to use a part of the identifier of the network element that allocates the temporary identity for data transfer, and to use the identifier for signaling.

26 25. (New) The mobile station of claim 23, wherein the temporary identity includes 3 to 5 bits of the identifier of the network element that allocates the temporary identity.

27 26. (New) The network element of claim 8, wherein the network element is a support node.

28 27. (New) The mobile station of claim 8, wherein the temporary identity includes 3 to 5 bits of the identifier of a network element that allocates the temporary identity.

29 28. (New) The radio station controller of claim 17, wherein the radio station controller is a base station controller.

30. (New The radio station controller of claim 17, wherein the radio station controller is a radio network controller.

31. (New) The radio station controller of claim 17, wherein the temporary identity comprises 3 to 5 bits of the identifier of the network element that allocates the temporary identity.